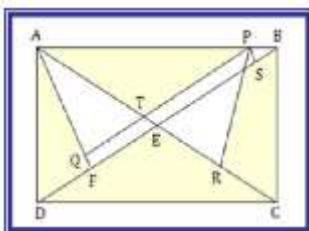


**CBSE**  
**Class IX Mathematics**  
**Term 1**  
**Sample Paper - 3**

- Q1. In the set of equations  $Z^x = Y^{2x}$ ,  $2^z = 2 \cdot 4^x$ ,  $x + y = 16$ , the integral roots in the order
- (a) 3, 4, 9
  - (b) 9, -5, 12
  - (c) 12, -5, 9
  - (d) 4, 3, 9
- Q2. Two candles of the same height are lighted at the same time. The first is consumed in 4 hours and the second in 3 hours. Assuming that each candle burns at a constant rate, in how many hours after being lighted was the first candle twice the height of the second?
- (a)  $\frac{3}{4}$  hr.
  - (b)  $1\frac{1}{2}$  hr.
  - (c) 2 hr.
  - (d)  $2\frac{2}{5}$
- Q3. A circular piece of metal of maximum size is cut out of a square piece and then a square piece of maximum size is cut out of the circular piece. The total amount of metal wasted is:
- (a)  $\frac{1}{4}$  the area of the original square
  - (b)  $\frac{1}{2}$  the area of the original square
  - (c)  $\frac{1}{2}$  the area of the circular piece
  - (d)  $\frac{1}{4}$  the area of the circular piece
- Q4. ABCD is a rectangle (see the diagram) with P any point on AB, PS  $\perp$  BD, PR  $\perp$  AC, AF  $\perp$  BD And PQ  $\perp$  AF. Then PR + PS is equal to:



- (a)  $\overline{PQ}$
- (b)  $\overline{AE}$
- (c)  $\overline{PT} + \overline{AT}$
- (d)  $\overline{AF}$

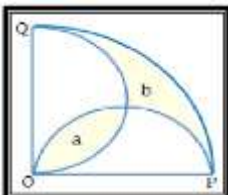
Q5. The length of a triangle is of length  $b$ , and the altitude is of length  $h$ , A rectangle of height  $x$  is inscribed in the triangle with the base of the rectangle in the base of the triangle. The area of the rectangle is;

- (a)  $\frac{bx}{h} (h - x)$
- (b)  $\frac{hx}{b} (b - x)$
- (c)  $\frac{bx}{h} (h - 2x)$
- (d)  $x(b - x)$

Q6. What remainders are obtained when the number consisting of 1001 sevens is divided by the number 1001?

- (a) 777
- (b) 707
- (c) 700
- (d) 770

Q7. OPQ is a quadrant of a circle and semicircles are drawn on OP and OQ. Then



- (a)  $a > b$
- (b)  $a < b$
- (c)  $a = b$
- (d) can't be determined

Q8. Who is the father of Geometry?

- (a) Pythagoras
- (b) Thales
- (c) Archimedes
- (d) Euclid.

- Q9. In a triangle ABC,  $\angle BCA=90^\circ$ . Points E and F lie on the hypotenuse AB such that  $AE=AC$  and  $BF = BC$ . Find  $\angle ECF$ .
- (a)  $45^\circ$   
(b)  $60^\circ$   
(c)  $75^\circ$   
(d) None of these
- Q10. Find the lengths of the sides of a triangle with 20, 28 and 35 as the lengths of its altitudes
- (a)  $\frac{25\sqrt{6}}{3}$   
(b)  $\frac{35\sqrt{6}}{3}$   
(c)  $\frac{33\sqrt{6}}{3}$   
(d) *None of these*
- Q11. A polynomial  $p(x)$  leaves a remainder three when divided by  $x - 1$  and a remainder five when divided by  $x-3$ . Find the remainder when  $p(x)$  is divided by  $(x-1)(x-3)$ .
- (a)  $x + 3$   
(b)  $x - 1$   
(c)  $x + 2$   
(d) None of these
- Q12. A number when divided by 7, 11 and 13 (the prime factor of 1001) successively leave the remainders 6, 10 and 12 respectively. Find the remainder if the number is divided by 1001.
- (a) 100  
(b) 10,000  
(c) 5000  
(d) 1000
- Q13. The area of a rectangle is  $x^2 + 9x + 14$ , what are the dimensions of rectangle if  $x = 2$ , Option
- (a) 14 and 2  
(b) 6 and -6  
(c) 9 and 4  
(d) 18 and 2

- Q14. A storage tank is in the form of a cube. When it is full of water, the volume of the water is  $15.625 \text{ m}^3$ . If the present depth of the water is  $1.3\text{m}$ , find the volume of water already used from the tank.
- (a)  $7.500 \text{ m}^3$   
(b)  $6.500 \text{ m}^3$   
(c)  $5.500 \text{ m}^3$   
(d) None of these
- Q15. Let  $p(x) = x^2 + bx + c$  where  $b$  and  $c$  are integers. If  $p(x)$  is a factor of both  $x^4 + 6x^2 + 25$  and  $3x^4 + 4x + 28 + 5$ , Find the value of  $p(1)$  ?
- (a) 3  
(b) 2  
(c) 4  
(d) 1
- Q16. Surface area of a sphere A is 300 % more than the surface area of another sphere B. If the volume of sphere B is  $p\%$  less than the volume of sphere A, find the value of 'p'
- (a) 67.5  
(b) 87.5  
(c) 55.5  
(d) None of these
- Q17. AB and BC are two equal chords of a circle of length  $2\sqrt{5}$  cm each. If radius of the circle is 5 cm, find the length of the chord AC.
- (a) 2  
(b) 5  
(c) 8  
(d) None of these

Q18. Two dice are thrown simultaneously, Find the sum of the probability of “getting a prime number as a sum” and probability of “getting a doublet of prime numbers.”

- (a)  $1/2$
- (b)  $2/3$
- (c)  $5/4$
- (d) None of these

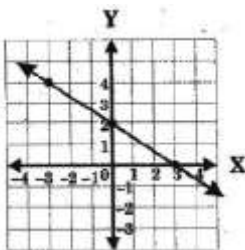
Q19.  $(x \% \text{ of } y + y \% \text{ of } x) =$

- (a)  $x \% \text{ of } y$
- (b)  $y \% \text{ of } x$
- (c)  $2 \% \text{ of } xy$
- (d)  $x \% \text{ of } xy$

Q20. Seven cubes of the same size are glued together face to face as shown in the adjoining diagram. What is the surface area, in square centimeters, of the solid if its volume is 448 cubic centimeters?

- (a) 460 cm<sup>2</sup>
- (b) 480 cm<sup>2</sup>
- (c) 450 cm<sup>2</sup>
- (d) None of these

Q21. Which of the following equations represents the given graphs?

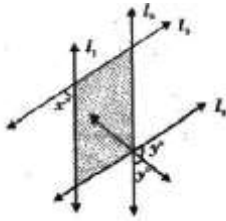


- (a)  $2x + y = 6$
- (b)  $y + 2x + 4$
- (c)  $2(x - 1) + 3y = 4$
- (d)  $2x - 3y = 6$

Q22. If two chords AD and BE are drawn perpendicular to a chord AB of a circle which of the following is correct?

- (a)  $AD = BE$
- (b)  $AD = 2BE$
- (c)  $2AD = BE$
- (d)  $AD = 3BE$

Q23. In the given figure, if  $l_1 \parallel l_2$  and  $l_3 \parallel l_4$  what is 'y' in terms of 'x'?



- (a)  $90^\circ + x$
- (b)  $90^\circ + 2x$
- (c)  $90^\circ - \frac{x}{2}$
- (d)  $90^\circ - 2x$

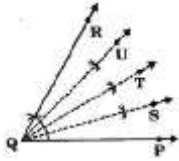
Q24.  $p(x)$  is a polynomial satisfying  $p\left(x + \frac{3}{2}\right) = p(x)$ , for all real values of 'x'. If  $p(5) = 2010$ , what is the value of  $p(8)$ ?

- (a) 2010
- (b)  $2009\frac{1}{2}$
- (c)  $\frac{2009}{2}$
- (d)  $2010\frac{1}{2}$

Q25. Find 'x', if  $8^{x-2} \times \left(\frac{1}{2}\right)^{4-3x} = (0.0625)^x$ .

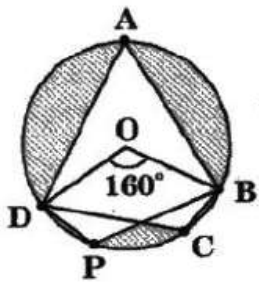
- (a) 0
- (b) 4
- (c) 2
- (d) 1

Q26. In the following figure,  $\angle OQR = 60^\circ$ ,  $\angle PQR$  is bisected and the resultant angles are bisected again.



Find  $\angle TQS + \angle SQU + \angle PQS$ .

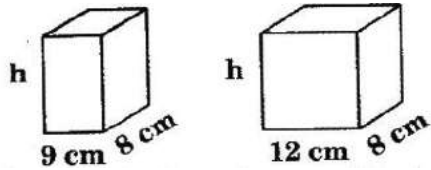
- (a)  $20^\circ$
  - (b)  $15^\circ$
  - (c)  $60^\circ$
  - (d)  $18^\circ$
- Q27. A bag contains 3 red balls, 5 black balls and 4 white balls. A ball is drawn at random from the bag. What is the probability of not getting a black ball?
- (a)  $\frac{1}{4}$
  - (b)  $\frac{5}{12}$
  - (c)  $\frac{1}{3}$
  - (d)  $\frac{7}{12}$
- Q28. In the given figure, ABCD and ABPD are two cyclic quadrilaterals.



If  $\angle BOD = 160^\circ$ , find the difference of  $\angle BPD$  and  $\angle BCD$ .

- (a)  $80^\circ$
- (b)  $160^\circ$
- (c)  $0^\circ$
- (d)  $100^\circ$

Q29. Two rectangular boxes have the same height and length, but different widths as shown in the figure.



The difference in the volumes of the boxes is  $360 \text{ cm}^3$ . What is the height of the boxes?

- (a) 18 cm
  - (b) 15 cm
  - (c) 16 cm
  - (d) 14 cm
- Q30. A field is in the shape of a trapezium whose parallel sides are 50 m and 15 m. The non – parallel sides are 20 m and 25 m. What is the area of the field?
- (a)  $\frac{900\sqrt{6}}{7} m^2$
  - (b)  $\frac{1100\sqrt{6}}{7} m^2$
  - (c)  $\frac{1300\sqrt{6}}{7} m^2$
  - (d)  $\frac{1500\sqrt{6}}{7} m^2$